Appln No.: 10/009,874
Amendment Dated: May 18, 2004
Reply to Office Action of December 18, 2003

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (original) A composition comprising at least 1 microgram of a purified nondenatured gp35 protein, with the proviso that said composition is not a gel.

2. (original) A purified bacteriophage T4 gp35 protein that is not contained in a gel.

3. (currently amended) A purified protein comprising the amino acid sequence depicted in Figure 2 (SEQ ID NO: 2) with one or more conservative substitutions relative to said sequence, wherein the purified protein is not contained in a gel, wherein the purified protein has an amino terminus that attaches to the C-terminus of bacteriophage T4 P34.

4. (currently amended) A protein comprising the amino acid sequence of 100 amino acids that has at least 60% identity to a gp35 protein having the amino acid sequence depicted in Figure 2 (SEQ ID NO: 2), wherein the protein is not contain in a gel and wherein the purified protein has an amino terminus that attaches to the C-terminus of bacteriophage T4 P34.

5 and 6. (canceled)

7. (currently amended) A purified protein comprising at least 8 contiguous amino acids of the gp35 protein sequence depicted in Figure 2 (SEQ ID NO: 2) from amino acids numbers 1 to 24, and which displays one or more functional activities of a gp35 protein, wherein the purified protein is not contained in a gel, and wherein the purified protein has an amino terminus that attaches to the C-terminus of bacteriophage T4 P34..

8. (original) The protein of claim 5 which is able to be bound by an antibody directed against a gp35 protein.

9. (original) The protein of claim 7 which has only conservative substitutions relative to the sequence in Figure 2 (SEQ ID NO: 2).

10. (original) A molecule comprising the protein of claim 7.

11. (previously presented) The protein of claim 4 which specifically binds with the P34 protein oligomer of bacteriophage T4.

12. (original) A purified fragment of the protein of claim 4, which comprises at least 8 contiguous amino acids of the gp35 protein sequence depicted in Figure 2 (SEQ ID NO: 2) from amino acids numbers 1 to 24, and which displays one or more functional activities of a gp35 protein.

13. (original) The fragment of claim 12 which is able to be bound by an antibody directed against a gp35 protein.

14. (original) A purified protein variant of a gp35 protein of bacteriophage T4, that is able to be bound by an antibody directed against a gp35 protein, wherein the interaction of said variant with the P36 protein oligomer of bacteriophage T4 is unstable at temperatures between about 40°C and about 60°C.

15. (original) A purified protein variant of a gp35 protein of bacteriophage T4, that is able to be bound by an antibody directed against a gp35 protein, wherein the interaction of said variant with the P34 protein oligomer of bacteriophage T4 is unstable at temperatures between about 40°C and about 60°C.

16. (original) A purified protein variant of a gp35 protein of bacteriophage T4, that (a) is able to be bound by an antibody directed against a gp35 protein, and (b) is conjugated to a group that confers the ability of the variant to bind a ligand.

17. (original) The variant of claim 16, wherein said ligand is selected from the group consisting of avidin, immunoglobulin, and a divalent metal ion.

18. (original) A purified molecule comprising a bacteriophage T4 gp35 protein fragment, wherein said fragment consists of at least the amino acid sequence depicted in Figure 2 (SEQ ID NO: 2) from amino acids numbers 1-17,1-56,1-78,1-93,8-17,57-93,57-64,66- 79 or 81-93, and wherein the molecule has an amino terminal portion that attaches to the C-terminus of bacteriophage T4 tail fiber protein P34.

19. (currently amended) A purified molecule comprising the amino acid sequence depicted in Figure 2 (SEQ ID NO: 2) from amino acids numbers 1-17,1-56,1-78,1-93,8-17,57-93,57-64,66-79 or 81-93, with one or more conservative substitutions relative to said sequence, and wherein the molecule has an amino terminal portion that attaches to the C-terminus of bacteriophage T4 tail fiber protein P34.

20. (currently amended) A purified molecule comprising an amino acid sequence having at least 30% identity to amino acids numbers 57 to 93 in Figure 2 (SEQ ID NO: 2) over a 36 amino acid

sequence, wherein the purified molecule is not contained in a gel, and wherein the molecule has an amino terminal portion that attaches to the C-terminus of bacteriophage T4 tail fiber protein P34.

21. (currently amended) A purified protein having at least 60% identity to amino acids numbers 57 to 93 in Figure 2 (SEQ ID NO: 2) over a 36 amino acid sequence, wherein the purified protein is not contained in a gel, and wherein the protein has an amino terminal portion that attaches to the C-terminus of bacteriophage T4 tail fiber protein P34.

22. (currently amended) A purified protein comprising at least a functionally active portion of the amino acid sequence in Figure 2 (SEQ ID NO: 2) from amino acids numbers 1-17,1-56,1-78,1-93,8-17,57-64,66-79, or 81-93, wherein the purified protein is not contained in a gel wherein the protein has an amino terminal portion that attaches to the C-terminus of bacteriophage T4 tail fiber protein P34.

23. (currently amended) A purified molecule comprising an amino acid sequence having at least 60% identity to amino acids numbers 1 to 100 in Figure 2 (SEQ ID NO: 2) over a 100 amino acid sequence, wherein the purified protein is not contained in a gel and wherein the molecule has an amino terminal portion that attaches to the C-terminus of bacteriophage T4 tail fiber protein P34.

24. (original) The purified fragment of claim 7, wherein said fragment lacks at least 10 contiguous amino acids of the sequence depicted in Figure 2 (SEQ ID [NO:] 2).

25-45 (cancelled)

46. (currently amended) The protein produced by growing a host cell containing a purified nucleic acid, comprising a nucleotide sequence encoding a gp35 protein having the amino acid sequence depicted in Figure 2 (SEQ ID NO: 2), operably linked to a heterologous promoter that controls expression of the nucleotide sequence such that the gp35 protein is expressed by the cell, and recovering the expressed protein, wherein the protein has an amino terminal portion that attaches to the C-terminus of bacteriophage T4 tail fiber protein P34 ~~product of the method of claim 44~~.

47. (currently amended) The protein produced by growing a host cell containing a purified nucleic acid, comprising a nucleotide sequence encoding a protein consisting of at least the amino acid sequence shown in Figure 2 (SEQ ID NO: 2) from amino acids numbers 1-17,1-56,1-78,1-93,8-17,57-93,57-64,66-79 or 81-93, with one or more conservative substitutions relative to said sequence such that the encoded protein is expressed by the cell, and recovering the expressed protein, wherein the protein has an amino terminal portion that attaches to the C-terminus of bacteriophage T4 tail fiber protein P34 ~~product of the method of claim 45~~.

48. (canceled)

49. (new) The composition of claim 1, wherein the gp35 protein has the sequence as set forth in Seq. ID No. 2.

50. (new) The protein of claim 2, wherein the gp35 protein has the sequence as set forth in Seq. ID No. 2.

51. (new) A protein consisting of:

(a) an amino-terminal portion, said amino-terminal portion consisting of amino acids 1-17,1-56,1-78,1-93,8-17,57-93,57-64,66- 79 or 81-93 of the sequence as defined in Seq. ID No. 2, or of these amino acids with one or more conservative substitutions; and

(b) a second portion, located C-terminal from the amino-terminal portion, wherein the amino terminal portion binds to attaches to the C-terminus of bacteriophage T4 tail fiber protein P34.

52. (new) The protein of claim 51, wherein the second portion comprises a C-terminal gp36 binding domain.

53. (new) The protein of claim 52, wherein the gp36 binding domain is a thermolabile binding domain.

54. (new) The protein of claim 51, wherein the protein consists of from 75 to 150 amino acids.

55. (new) The protein of claim 54, wherein the second portion comprises a C-terminal gp36 binding domain.

56. (new) The protein of claim 55, wherein the gp36 binding domain is a thermolabile binding domain.

57. (new) The protein of claim 51, wherein the protein comprises a second portion having the sequence as set forth in amino acids 373 to the C-terminus of Seq. ID No. 2.

58. (new) The protein of claim 51, wherein the amino-terminal portion is at least 90% identical to Seq. ID No. 2 over an amino acid sequence of identical size or when compared to an aligned sequence in which the alignment is done by a computer homology program known in the art.

59. (new) The protein of claim 58, wherein the amino-terminal portion is at least 95%

identical to Seq. ID No. 2 over an amino acid sequence of identical size or when compared to an aligned sequence in which the alignment is done by a computer homology program known in the art.

60. (new) The protein of claim 58, wherein the second portion comprises a C-terminal gp36 binding domain.

61. (new) The protein of claim 60, wherein the gp36 binding domain is a thermolabile binding domain.

62. (new) The protein of claim 58, wherein the protein consists of from 75 to 150 amino acids.

63. (new) The protein of claim 62, wherein the second portion comprises a C-terminal gp36 binding domain.

64. (new) The protein of claim 63, wherein the gp36 binding domain is a thermolabile binding domain.

65. (new) The protein of claim 58, wherein the protein comprises a second portion having the sequence as set forth in amino acids 373 to the C-terminus of Seq. ID No. 2.